

ZINC OXIDE-BASED FINE PARTICLE, ITS PRODUCTION AND USE

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Abstract of JP8253317

PURPOSE: To obtain excellent heat ray shielding properties by using an additive element selected from among group IIIB and IVB metallic elements of the periodic table and Zn as metallic components and a coprecipitated substance of a metallic oxide manifesting the ZnO crystallinity at a specific ZnO content as a constituent component. CONSTITUTION: A Zn source such as ZnO powder and a metallic element source selected from among group IIIB and IV metallic elements of the periodic table are added to a mixed solvent of a monocarboxylic acid having <=200 deg.C boiling point such as acetic acid with water. The temperature of the mixture solution is increased under stirring to dissolve both Zn and the metallic element sources to prepare a solution containing a metal such as Zn. The resultant solution containing the metal is then dropped into a heated solvent such as 2-butoxyethanol and the obtained mixture is heated to about 100-300 deg.C. An additive such as lauric acid is then added thereto. The prepared mixture is stirred to provide ZnO-based primary fine particles, having 0.001-0.1 μ m average particle diameter, comprising a coprecipitated metallic oxide substance containing 80-99.1% Zn and 0.1-20% other metals expressed in terms of the ratio of number of atoms and capable of manifesting the ZnO crystallinity. Furthermore, a lactic acid source is added to the solution containing the metal and the resultant mixture solution is heat-treated at >=100 deg.C to afford secondary fine particles having 0.001-10 μ m average particle diameter.

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